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**Aaron Van Winkle**, 1101 W. College Ave., Jacksonville, IL 62650. *Embedding  $M_\ell$  in  $Sub(\mathbb{Z}_n \times \mathbb{Z}_n)$* . Preliminary report.

Much work has been devoted to the problem of embedding the lattice  $M_\ell$  as an interval in the subgroup lattice of a group, a difficult and important problem for lattice theory. In this talk, we consider the problem of embedding  $M_\ell$  as a 0-1 sublattice of the subgroup lattice of a group, in particular of the group  $\mathbb{Z}_n \times \mathbb{Z}_n$ . The interest in this problem is more combinatorial than lattice-theoretic, and is related to the construction of finite projective planes and to the group-representation of relation algebras known as Lyndon algebras. We will characterize the  $\ell$  such that  $M_\ell$  embeds as a 0-1 sublattice of  $\mathbb{Z}_n \times \mathbb{Z}_n$  but  $M_{\ell+1}$  does not. (Received December 18, 2009)